1. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$(3 - 6i)(-2 + 8i)$$

A. $a \in [-56, -49]$ and $b \in [12, 15]$

B. $a \in [41, 46]$ and $b \in [-39, -34]$

C. $a \in [41, 46]$ and $b \in [33, 44]$

D. $a \in [-9, -5]$ and $b \in [-54, -45]$

E. $a \in [-56, -49]$ and $b \in [-13, -7]$

---

2. Simplify the expression below and choose the interval the simplification is contained within.

$$12 - 6^2 + 3 \div 15 * 2 \div 4$$

A. $[-23.94, -23.85]$

B. $[47.97, 48.03]$

C. $[48.03, 48.14]$

D. $[-24.03, -23.94]$

E. None of the above

---

3. Choose the **smallest** set of Complex numbers that the number below belongs to.

$$\sqrt{\frac{-2244}{12}}i + \sqrt{165}i$$

A. Not a Complex Number

B. Pure Imaginary

C. Rational

D. Nonreal Complex

E. Irrational

4. Choose the **smallest** set of Real numbers that the number below belongs to.

$$\sqrt{\frac{38025}{225}}$$

A. Not a Real number

B. Integer

C. Whole

D. Rational

E. Irrational

5. Simplify the expression below and choose the interval the simplification is contained within.

$$14 - 10^2 + 13 \div 20 * 8 \div 5$$

A. $[-86.15, -85.68]$

B. $[114.67, 115.06]$

C. $[113.95, 114.92]$

D. $[-85.12, -83.54]$

E. None of the above

6. Choose the **smallest** set of Real numbers that the number below belongs to.

$$\sqrt{\frac{15876}{36}}$$

A. Irrational

B. Not a Real number

C. Whole

D. Integer

E. Rational

---

7. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$\frac{54 + 55i}{-2 - 3i}$$

A. $a \in [-273.5, -271.5]$ and $b \in [3, 4.5]$

B. $a \in [-22, -20]$ and $b \in [3, 4.5]$

C. $a \in [-22, -20]$ and $b \in [51, 52.5]$

D. $a \in [-27.5, -26]$ and $b \in [-18.5, -17]$

E. $a \in [3.5, 6]$ and $b \in [-21.5, -20.5]$

---

8. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$\frac{72 + 55i}{7 - 3i}$$

A. $a \in [11, 12]$ and $b \in [2.5, 3.5]$

B. $a \in [338.5, 340.5]$ and $b \in [8.5, 12.5]$

C. $a \in [5.5, 6.5]$ and $b \in [8.5, 12.5]$

D. $a \in [5.5, 6.5]$ and $b \in [600, 603]$

E. $a \in [10, 10.5]$ and $b \in [-19.5, -17]$

---

9. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$(-2 + 9i)(-5 + 6i)$$

A. $a \in [58, 66]$ and $b \in [-40, -32]$

B. $a \in [-47, -43]$ and $b \in [-58, -56]$

C. $a \in [10, 12]$ and $b \in [49, 55]$

D. $a \in [-47, -43]$ and $b \in [55, 60]$

E. $a \in [58, 66]$ and $b \in [32, 37]$

---

10. Choose the **smallest** set of Complex numbers that the number below belongs to.

$$\frac{-18}{2} + \sqrt{-36}i$$

A. Irrational

B. Pure Imaginary

C. Rational

D. Not a Complex Number

E. Nonreal Complex

---

11. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$(-6 + 10i)(5 + 8i)$$

A. $a \in [-31, -24]$ and $b \in [77, 82]$

B. $a \in [-113, -107]$ and $b \in [1, 8]$

C. $a \in [45, 54]$ and $b \in [93, 99]$

D. $a \in [-113, -107]$ and $b \in [-6, 1]$

E. $a \in [45, 54]$ and $b \in [-98, -93]$

---

12. Simplify the expression below and choose the interval the simplification is contained within.

$$20 - 3^2 + 14 \div 9 * 10 \div 17$$

A. $[29.61, 30.26]$

B. $[28.47, 29.04]$

C. $[11.8, 12.05]$

D. $[10.14, 11.46]$

E. None of the above

---

13. Choose the **smallest** set of Complex numbers that the number below belongs to.

$$\frac{-11}{0} + \sqrt{221}i$$

A. Rational

B. Nonreal Complex

C. Pure Imaginary

D. Not a Complex Number

E. Irrational

---

14. Choose the **smallest** set of Real numbers that the number below belongs to.

$$\sqrt{\frac{33856}{529}}$$

A. Whole

B. Not a Real number

C. Integer

D. Irrational

E. Rational

---

15. Simplify the expression below and choose the interval the simplification is contained within.

$$16 - 6 \div 3 * 10 - (5 * 14)$$

A. $[-55.2, -51.2]$

B. $[-79, -73]$

C. $[83.8, 88.8]$

D. $[-135, -117]$

E. None of the above

---

16. Choose the **smallest** set of Real numbers that the number below belongs to.

$$\sqrt{\frac{-1950}{15}}$$

A. Whole

B. Irrational

C. Rational

D. Integer

E. Not a Real number

---

17. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$\frac{72 + 33i}{-2 - 4i}$$

A. $a \in [-1.5, 1]$ and $b \in [-19, -16.5]$

B. $a \in [-14.5, -13]$ and $b \in [10, 12]$

C. $a \in [-14.5, -13]$ and $b \in [221.5, 223]$

D. $a \in [-277.5, -275.5]$ and $b \in [10, 12]$

E. $a \in [-37, -35]$ and $b \in [-9, -7.5]$

---

18. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$\frac{-45 - 66i}{3 - i}$$

A. $a \in [-17, -14.5]$ and $b \in [64.5, 66.5]$

B. $a \in [-20.5, -19]$ and $b \in [-17, -14]$

C. $a \in [-69.5, -68.5]$ and $b \in [-24.5, -23]$

D. $a \in [-8.5, -5.5]$ and $b \in [-24.5, -23]$

E. $a \in [-8.5, -5.5]$ and $b \in [-244, -242.5]$

---

19. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$(-5 - 9i)(-7 - 10i)$$

A. $a \in [117, 133]$ and $b \in [-18, -10]$

B. $a \in [-55, -54]$ and $b \in [107, 117]$

C. $a \in [-55, -54]$ and $b \in [-115, -107]$

D. $a \in [33, 41]$ and $b \in [84, 91]$

E. $a \in [117, 133]$ and $b \in [12, 16]$

---

20. Choose the **smallest** set of Complex numbers that the number below belongs to.

$$\sqrt{\frac{-1664}{8}} + \sqrt{0}i$$

A. Rational

B. Nonreal Complex

C. Not a Complex Number

D. Pure Imaginary

E. Irrational

---

21. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$(-9 + 6i)(-3 - 7i)$$

A. $a \in [27, 36]$ and $b \in [-42.6, -39.8]$

B. $a \in [63, 72]$ and $b \in [42.5, 48.1]$

C. $a \in [63, 72]$ and $b \in [-45.8, -44.8]$

D. $a \in [-15, -12]$ and $b \in [77.3, 81.3]$

E. $a \in [-15, -12]$ and $b \in [-81.8, -80.1]$

---

22. Simplify the expression below and choose the interval the simplification is contained within.

$$2 - 14^2 + 15 \div 1 * 13 \div 11$$

A. $[-193.9, -191.9]$

B. $[196.1, 205.1]$

C. $[-182.27, -169.27]$

D. $[214.73, 220.73]$

E. None of the above

---

23. Choose the **smallest** set of Complex numbers that the number below belongs to.

$$\frac{0}{-12\pi} + \sqrt{6}i$$

A. Rational

B. Pure Imaginary

C. Not a Complex Number

D. Nonreal Complex

E. Irrational

---

24. Choose the **smallest** set of Real numbers that the number below belongs to.

$$\sqrt{\frac{64}{121}}$$

A. Whole

B. Irrational

C. Not a Real number

D. Integer

E. Rational

---

25. Simplify the expression below and choose the interval the simplification is contained within.

$$14 - 9^2 + 3 \div 7 * 8 \div 4$$

A. $[95.76, 96.27]$

B. $[-66.87, -65.79]$

C. $[94.97, 95.85]$

D. $[-67.26, -66.98]$

E. None of the above

---

26. Choose the **smallest** set of Real numbers that the number below belongs to.

$$-\sqrt{\frac{484}{49}}$$

A. Rational

B. Whole

C. Irrational

D. Integer

E. Not a Real number

---

27. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$\frac{-18 - 55i}{1 - 6i}$$

A. $a \in [-18.5, -17.5]$ and $b \in [8, 9.5]$

B. $a \in [311, 313]$ and $b \in [-5.5, -3.5]$

C. $a \in [7.5, 9.5]$ and $b \in [-5.5, -3.5]$

D. $a \in [-9.5, -8.5]$ and $b \in [0.5, 2.5]$

E. $a \in [7.5, 9.5]$ and $b \in [-163.5, -162]$

---

28. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$\frac{45 - 88i}{-3 + 4i}$$

A. $a \in [-20.5, -18]$ and $b \in [1.5, 5]$

B. $a \in [-16, -14.5]$ and $b \in [-22.5, -21.5]$

C. $a \in [-487.5, -486]$ and $b \in [1.5, 5]$

D. $a \in [7.5, 10]$ and $b \in [17, 18]$

E. $a \in [-20.5, -18]$ and $b \in [83.5, 85]$

---

29. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$(4 + 6i)(3 + 10i)$$

A. $a \in [69, 79]$ and $b \in [22, 29]$

B. $a \in [-49, -46]$ and $b \in [-59, -56]$

C. $a \in [11, 18]$ and $b \in [60, 68]$

D. $a \in [69, 79]$ and $b \in [-25, -16]$

E. $a \in [-49, -46]$ and $b \in [58, 59]$

---

30. Choose the **smallest** set of Complex numbers that the number below belongs to.

$$\frac{\sqrt{165}}{8} + \sqrt{-10}i$$

A. Irrational

B. Rational

C. Not a Complex Number

D. Nonreal Complex

E. Pure Imaginary
